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# **East Asian Patterns of Comparative Advantage**



**David Roland-Holst**

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## PREFACE

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Under its general research agenda on economic development, the ADB Institute Research Paper Series disseminates works-in-progress to advance general understanding of important research issues, inform interested parties, and invite comments and questions.

I trust that this series will facilitate constructive dialogue among policymakers as well as among researchers about the most beneficial course of development and growth for the Asian economies.

Peter McCawley  
Dean  
ADB Institute

## ABSTRACT

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Over the last generation, the East Asian trading environment has emerged as a model for dynamic resource allocation and international specialization. At the same time as this process began to mature, the emergence of China has given the process new impetus and increased uncertainty about the evolution of the regional activity matrix. The region can still aspire to a long term future of highly industrialized and diversified regions like Europe. Many observers are concerned that in the short and medium term, however, direct and indirect competition may lead to painful domestic structural adjustments. The lessons of recent history, as distilled in the present research, indicate that regional patterns of comparative advantage are fairly robust.

In particular, we examined detailed trade patterns from two perspectives, simple trade orientation and orientation of trade adjusted for skilled labor content. The emergence of new competition in regional commodity trade is undeniable, but the de facto regional hierarchy of value added in East Asia has not been substantially altered. Indeed, the most skill intensive exporters, Japan and the NIE's, have actually intensified their "skill specialization" over the period 1996-2000.

Generally speaking, our results indicate that the potential for regional trade to accommodate new suppliers is considerable, and many examples are given of how trade over recent years has done exactly this. These findings are of considerable policy relevance in their own right, since they may help defuse misdirected trade rivalry and protectionist sentiment that can exploit a weaker basis of evidence on actual trade experience. Having said this, however, this relatively optimistic vision does rest on another, larger aspiration, sustained aggregate economic growth. The results of the two predecessors to this study indicate that this aggregate optimism is justified, and the combined message is one of sustained and broadly distributed opportunity, opportunity for governments and enterprises to realize the immense economic potential of this region and its people.

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# East Asian Patterns of Comparative Advantage

David Roland-Holst

## 1. Introduction

Over the last three decades, the Pacific Basin has emerged as the most dynamic economic region of the world. Despite occasional setbacks, the Pacific region generally and East Asia have done more, in response to market forces, to raise human living standards than generations of more direct domestic and international policy management and market intervention.<sup>1</sup> Over half the world's population lives in countries bordering on the Pacific region, and this fact imparts historical momentum to these economic trends that goes well beyond mere statistical tables.

One of primary drivers of the regional growth process has of course been international trade, and trade also holds the promise for future dynamism. Meanwhile, a myriad of events, including WTO process and progress, a steady succession domestic political and economic liberalizations, and, perhaps most dramatically, China's economic emergence, are forever changing the landscape of trade in the region and with respect to the rest of the world.<sup>2</sup> Whatever the ultimate course of development in East Asia, it is clear that the forces at work are complex and in many cases unprecedented. For this reason, policy makers relying on intuition alone are very unlikely to anticipate events accurately and/or respond with measures that approach optimality.

Changing trade patterns in East Asia will be driven by two forces:

1. Emergence of new demand patterns, particularly within the region (China).
2. Established and evolving patterns of comparative advantage.

This paper is the third in a series of efforts to support better policy with more detailed and immediately relevant economic analysis.<sup>3</sup> The previous papers focused on the demand

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<sup>1</sup> See e.g. Coates (1997) and World Bank (2002) for more historical background.

<sup>2</sup> Martin and Winters (2002) provides many examples of these forces at work, with special reference to developing countries.

<sup>3</sup> See Roland-Holst (2002, 2003a) for related contributions.

side of the issues with forward looking growth scenarios. By contrast, the current analysis uses historical data to elucidate underlying patterns of regional comparative advantage. Based on detailed bilateral trade data from UNCTAD and employment information from GTAP, we derive measures of international competitiveness for the leading economies of the region (including the EU) and examine how their bilateral and multilateral comparative advantages have changed over the period 1996-2000.<sup>4</sup>

Our findings generally indicate that China's emergence represents more complementarity than substitution in the regional activity matrix. In particular, most East Asian exporters have established themselves in a de facto hierarchy of regional value added and China, despite much speculation to the contrary, had not substantially disrupted this by 2000. The paper is replete with detailed examples, but a few stand out. ASEAN appears to be holding its own and even increased the skill content of its bilateral exports (to China and elsewhere) over the period considered. Japan has actually increased relative export competitiveness of its skill-intensive sectors, with respect to China and the western OECD.

Generally speaking, our results indicate that the potential for regional trade to accommodate new suppliers is considerable, and we give many examples of how trade over recent years has done exactly this. These results are of considerable policy relevance in their own right, since they may help defuse misdirected trade rivalry and protectionist sentiment that can exploit a weaker basis of evidence on actual trade experience. Having said this, however, this relatively optimistic vision does rest on another, larger aspiration, sustained aggregate economic growth. As long as downward cycles are shorter and more attenuated than upward ones, there is clearly enough economic diversity in the East Asian region to sustain and share the benefits of growth in an environment of every more open multilateralism.<sup>5</sup> The results of the two predecessors to this study indicate that this aggregate optimism is justified, and the combined message is one of sustained and

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<sup>4</sup> Contributors to Drysdale and Vines (1998) make a strong case for East Asian, US, and EU incentive compatibility in any sustainable agenda for globalization. Compare to Goto and Hamada (1997), Hoekman and Kostecki (1995), and Kather (1995).

<sup>5</sup> For comparative discussion of the growth potential of regional trading arrangements, see World Bank (2000) and de Melo et al (1993).

broadly distributed opportunity, opportunity for governments and enterprises to realize the immense economic potential of this region and its people.

The next section presents a new estimation technique for elucidating detailed patterns of comparative advantage. The method is applied to East Asia and its largest trading partners in Section 3, and concluding remarks are presented in Section 4.

## **2. A New Approach to Evaluating Comparative Advantage**

In order to identify national opportunities for global competitiveness and emergent patterns of comparative advantage, researchers often examine very detailed trade statistics. With the advent of customs line standardization and multilateral trade negotiation, this job is made easier by comparable bilateral trade flow data at 6, 8, and even 10 digit commodity lines. Analysis of this data is obviously an intensive exercise, but with the decomposition of global supply chains, patterns of national specialization are becoming every more finely delineated.<sup>6</sup>

By examining detailed commodity trade, one can identify activities that are relatively export competitive or displaced by import competition, and from this infer the underlying national resource characteristics that give rise to these patterns. Two problems arise in this approach, however.

Firstly, even at very detailed customs lines, countries often register trade in both directions. So-called intra-industry trade is a fact of life in the global economy, and because of the decomposition process just referred to, this kind of trade is growing much faster than specialized trade. For the same reason, trade in intermediate goods is also growing faster than trade in final goods. This makes it more difficult to decompose import and export orientation for a given commodity group.

A second challenge in detailed commodity flow analysis is the weakness of and heuristic inferences about the resource endowments or structural comparative advantages underlying trade flows. The problem here is also twofold:

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<sup>6</sup> See Roland-Holst (2003a) for more extended discussion of global supply networks.

1. Traded goods are shipped with both factor and intermediate content, and the composition and national origin of these is a separate empirical question.
2. Even if factor content can be inferred in heuristic terms, national technologies are highly variable and so are the returns to domestic factors. For this reason, the “quality” of factor content in terms of value added is another important empirical issue.

To put the issue more succinctly, exhaustive analysis of trade flow data can reveal emergent patterns of commodity trade, but not the underlying sources or ultimate effects, of comparative advantage. In a globalizing economy in the long run, capital is mobile and wage differentials can only be sustained by productivity differences. Thus, for example, the skill content of trade is an essential determinant of real comparative advantage.<sup>7</sup>

Because of its relationship to median livelihoods, skill content in value added is one of most important issues for policy makers in growth-oriented economies. In this paper, we want to focus on the labor content issue, estimating skilled and unskilled employment in tradable as a way of elucidating the value added hierarchy across East Asian trade. Our basic approach is to synthesize detailed trade flow data with domestic skill content information and impute trade in embodied labor services.

### *2.1. Embodied Labor Service Trade*

To more effectively measure the skill content of trade, and use this for assessing national competitiveness we build upon a decades-old index developed by Balassa to study patterns of intra-industry trade. Formally, define the index of intra-industry competitiveness as

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<sup>7</sup> There are of course many examples of empirical trade analysis from a labor content perspective. For comparison, see text and references in van der Mensbrugge (1998), Maechler and Roland-Holst (1997), Lee and Roland-Holst (1994, 1995), and Collado et al (1995).

$$IIC = (E-M)/(E+M)$$

where IIC ranges between -1 (100% import oriented) and 1 (100% export oriented) for any given sector  $i$ . Balassa developed a similar index, equal to  $|IIC|$ , but the sign indicates direction of trade dependence, so we preserve it here.

This index is quite easy to calculate for even the most detailed customs lines. It can be done for one countries trade with the rest of the world, or within each of its bilateral relationships. As the level of disaggregation increases, the computed index move toward the  $[-1, 1]$  endpoints, but intra-industry trade (interior values) is an ever more persistent phenomenon, as was mentioned earlier.

While the IIC index is of interest in itself, our goal is to extend it to capture “qualitative” features of competitiveness, in this case skill content of value added. Clearly, much of the spirit of competition in East Asia is focused on migrating up the value added “ladder.” This means countries are striving to be export oriented in higher wage intensive goods and import oriented in lower wage intensive goods. To extend our analysis in this direction, detailed trade flow data were adjusted to capture differences in average skill content of embodied labor services. In particular, for country  $k$  and sector  $i$ , we define

$$\lambda_i^k = \frac{LVA(Skilled)_i^k}{LVA(Unskilled)_i^k}$$

where LVA denotes labor value added for each sector and country. This measure indicates the relative skill content, per unit of output, and is independent of exchange rates.

The next step is to use this information to adjust trade flows for each country and commodity category. At this level of detail, we define the traditional competitiveness measure as

$$IIC_i^{km} = \frac{E_i^{km} - E_i^{mk}}{E_i^{km} + E_i^{mk}}$$

Where the variable  $E_i^{km}$  denotes exports of sector  $i$  commodities from country  $k$  to country  $m$ . This more detailed index can then be recast in terms of skills with the Embodied Labor service Trade index

$$ELT_i^{km} = \frac{\lambda_i^k E_i^{km} - \lambda_i^m E_i^{mk}}{\lambda_i^k E_i^{km} + \lambda_i^m E_i^{mk}}$$

This indicator also varies in the interval  $[-1, 1]$  and denotes the relative export or import orientation of embodied labor service trade.

Obviously, the ELT measure is only one among a wide variety of approaches to skill weighting of output and, by extension, trade ratios. Each of these will elucidate some issues with greater clarity and probably impart biases to other interpretations. While a more exhaustive study would be needed to adjudicate among the many choices available, the present index is valuable because it takes advantage of internationally consistent data on both trade and domestic value added. Among its potential shortcomings, readers should bear in mind that it might tend to overweigh very skill intensive activities that are highly trade dependent (i.e. have high ratios of exports to output or imports to domestic demand). With this in mind, we report both sector count and trade weighted indexes to give an indication of the risk of such biases, and do not find them to be significant in the cases considered.

### **3. Empirical Estimates**

Using the relatively simple derivations of the last section, we now present a spectrum of results on patterns of competitiveness in East Asia. The tables presented in this section we calculated using 2-digit bilateral trade flows from the United Nations COMTRADE dataset. Series for 1996 and 2000 were both used.

Indices of labor value added we obtained using country-specific input-output accounts from the Global Trade Analysis Project (GTAP). The main information resource

of this project is a database reconciles macroeconomic and input-output accounts from over 66 countries and regional aggregate economies into a single global data resource.<sup>8</sup> The data labor data we use are derived from the value added accounts of GTAP, which are documented in detail in Chapter 18, Section D of Dimaranan and McDougall (2002) and may also be consulted online.<sup>9</sup> Briefly, labor was disaggregated across from total employment using the ILO definitions of skilled and unskilled workers.<sup>10</sup>

A general indication of differences between simple and skill adjusted trade flow indexes can be obtained from Table 2.1. Specifically, there are six sub-tables, three each for IIC and ELT. The rows of each sub-table give percentages of observed sectors in quintiles corresponding to three equal segments of the closed interval  $[-1, 1]$ . For example, row 1, column 1 indicates that 15% of China's sectors are import dependent by the IIC measure ( $-1 < \text{IIC} < -.33$ ). Moreover, tercile entries in this sub-table (and all left-hand sub-tables) are trade weighted, while the right-hand sub-tables give simple sector count percentages in columns 8-14. The third pair of sub-tables (rows 7-9) presents the differences IIC-ELT to indicate the relative disparity between output-based trade orientation and trade orientation based on embodied skill content.

While sector count terciles might be of some interest for political economy reasons, trade weighted indexes are certainly more relevant to the issue at hand. For this reason and the sake of brevity, we focus discussion on the left-hand sub-tables. For the IIC index (top left sub-table) some estimates are consistent with conventional intuition, while others reward greater reflection. Japan and the NIE economies exhibit a high degree of trade specialization, with strong export orientation. The NIE group (Korea and Taipei, China) is the most export oriented (84% in IIC terms), while China, ASEAN, USA, and the EU exhibit a high degree of neutrality. The reasons for less sectoral specialization in some these cases may include reliance on imported capital goods and intermediates. Japan and the US exhibit a relatively large percentage of import dependent

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<sup>8</sup> See Hertel et al (2000) or consult [www.gtap.org](http://www.gtap.org) for complete documentation.

<sup>9</sup> See [www.gtap.agecon.purdue.edu/resources/download/798.pdf](http://www.gtap.agecon.purdue.edu/resources/download/798.pdf)

<sup>10</sup> The definition of professional- and production-workers is based on the ILO International Standard Classification of Occupations (ISCO, see e.g. ILO:2002). For the technical methods and detailed assumptions, see Liu et al (1998ab) and Tri and Tyers (1996).

sectors, as one might expect, while the EU appears to be relatively devoid of trade specialization.

Now we re-examine trade through the lens of embodied labor skill composition. The results reported here are both interesting and ultimately quite logical, but they cast new light on trade hierarchy with respect to East and Southeast Asia. In a modern global economy, mercantilism is untenable and national economies must accept import reliance along with export opportunity. In this case, the goals of policy makers are presumably not to minimize imports, but to promote comparative advantage in activities with higher value added capture, and particularly higher factor productivity and returns. Seen from this perspective, we find that, with respect to emergent Asian exporters, the skill-adjusted trade position of OECD economies is much stronger than simple trade flow data would suggest. Japan, for example, has 80% of its skill-adjusted trade in export oriented sectors, while the corresponding simple trade (IIC) percentage is only 63%.

Entries in the third sub-table (rows 7-9) indicate how the basic trade and embodied skill orientations differ, i.e. the degree to which a given country is a “skill specialist.” The most successful skill specialist is the EU, which has 40% of its skill adjusted trade in the export oriented category, against 0% of simple output or commodity based trade. Next are Japan (17%) and the U.S. (13%), which also capture higher than average labor value added in export oriented activities. Both China and the NIE group exhibit a kind of skill “neutrality in the present sample, indicating that their trade is diversified fairly completely across the skill spectrum of their domestic labor force. Thus, for example, NIE have export orientation in a majority of trade-weighted activities, but these represent about the same (skilled/unskilled) employment composition as domestic GDP.

### *3.1. Bilateral Trade*

With these aggregate comparisons in mind, we now turn to more detailed, bilateral trade conditions. Tables 2.2-2.7 are analogous to Table 2.1, but present for each country and group the IIC and ELT indexes computed for trade with bilateral partners.

These results more finely delineate patterns of regional comparative advantage, and again they are sometimes intuitive and sometimes less so.

### *3.1.1. China*

Results for China's trade are among the most arresting in this group. Firstly, the bilateral differences between IIC and ELT indexes are very strong, with China apparently quite import dependent in terms of skill intensity. While this is an important reminder about the emergent status of China's labor market, the qualitative uniformity of this result is striking. Even ASEAN exceeds China in the skill intensity of its bilateral exports, although the inclusion of Singapore in this group is essential to bear in mind here.

Another salient feature of China's ELT results is the fact that there is very little middle ground. China's skill weighted trade is mainly strong export or strong import oriented, without much neutrality. This fact results from a combination of features, including the facts that China appears to be exporting from the extremes of its labor force, either high or low skill labor content, while mid-skill labor is probably more concentrated in services and other nontradables. Another reason for the skill dichotomy is probably China's continued reliance on imported capital goods and high technology.

Finally, it is worth noting the aggregation bias that appears when trade flows are consolidated across partners. Columns 1-6 and 8-13 correspond to bilateral trade between China and the column heading partner, while columns 7 and 14 apply to China's trade with all partners (as in columns 1 and 8 of Table 2.1). The latter appears to be quite balanced, but we see that China's trade with individual partners is not only more specialized but dichotomous in the way described above (mostly high and low skill). Of course it makes sense that aggregation across trade partners would reduce apparent specialization, but variations across trading partners are quite important to the evolution of regional trading hierarchy.

### *3.1.2. Japan*

Turning to the results for Japan, we see a country that exhibits high levels of both import and export specialization, yet the simple trade and skill-adjusted results again differ in important and revealing ways. Note that simple trade is more neutral, with 20% of its trade weighted sectors in this category (column 7, row 2). Skill-adjusted trade is more dichotomous, however, with only 5% neutrality. More importantly for Japan, a significant majority (80%) of its skill-weighted trade is export oriented.

These results indicate an economy with a relatively enviable trade position, even with respect to prominent emerging competitors like China. Yes, Japan has high levels of specialized import reliance on many of its trading partners, but it is a very effective exporter. Thus Japan sits at or near the top of the value added hierarchy in regional trade, importing generous quantities of low skill products, but export oriented in high skill products. Surely this is where a country would like to find itself in a prospective global trade regime of open multilateralism. Whether this kind of neo-mercantilism, where a country's trade patterns maximize the domestic capture of international value added, is sustainable or not, it does give greater insight into regional comparative advantage and some of the forces at work in evolving trade patterns.<sup>11</sup>

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<sup>11</sup> These trends for Japan were anticipated and later incisively analyzed in a series of contributions by Urata and co-authors. See e.g. Urata (1993, 1997, 1998ab).

**Table 2.1: International Competitiveness by Commodity and Embodied Skill Content**

	Trade Weighted Percentages						Percentages by Sector Count					
<i>IIC</i>	<i>Intra-industry Competitiveness</i>											
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
	China	Japan	NIE	ASEAN	USA	EU	China	Japan	NIE	ASEAN	USA	EU
<i>1</i> Import	15	17	3	8	29	1	21	50	20	26	45	8
<i>2</i> Neutral	58	20	15	73	68	99	44	30	38	47	44	91
<i>3</i> Export	27	63	83	19	3	0	35	20	42	28	11	1
<b>Total</b>	100	100	100	100	100	100	100	100	100	100	100	100
<i>ELT</i>												
	China	Japan	NIE	ASEAN	USA	EU	China	Japan	NIE	ASEAN	USA	EU
<i>4</i> Import	16	15	2	7	21	0	26	38	18	26	29	3
<i>5</i> Neutral	57	5	14	74	63	60	39	23	32	49	38	50
<i>6</i> Export	27	80	84	19	16	40	36	39	50	26	34	47
<b>Total</b>	100	100	100	100	100	100	100	100	100	100	100	100
<i>ELT-IIC</i>												
	China	Japan	NIE	ASEAN	USA	EU	China	Japan	NIE	ASEAN	USA	EU
<i>7</i> Import	1	-2	0	-1	-8	-1	4	-12	-2	0	-16	-5
<i>8</i> Neutral	-1	-15	-1	2	-5	-39	-5	-6	-6	2	-6	-41
<i>9</i> Export	0	17	1	0	13	40	1	18	8	-2	22	46

**Table 2.2: International Competitiveness by Commodity and Embodied Skill Content - CHINA**

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	Import	0	65	93	29	6	11	15	0	31	49	24	21	32	21
2	Neutral	0	4	3	61	26	58	58	0	20	30	35	28	30	44
3	Export	0	31	4	10	68	31	27	0	49	21	41	51	39	35
	<b>Total</b>	0	100	100	100	100	100	100	0	100	100	100	100	100	100
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	Import	0	69	94	79	13	63	16	0	46	54	28	34	48	26
5	Neutral	0	5	3	11	45	10	57	0	19	28	33	32	24	39
6	Export	0	26	3	9	42	26	27	0	35	18	40	35	28	36
	<b>Total</b>	0	100	100	100	100	100	100	0	100	100	100	100	100	100
<i>ELT-IIC</i>		<i>Difference</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
7	Import	0	4	1	50	7	52	1	0	15	5	3	12	16	4
8	Neutral	0	0	0	-50	19	-48	-1	0	-1	-2	-2	4	-5	-5
9	Export	0	-5	-1	-1	-26	-4	0	0	-14	-3	-1	-16	-11	1

**Table 2.3: International Competitiveness by Commodity and Embodied Skill Content - JAPAN**

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	Import	31	0	16	24	12	16	17	49	0	50	44	53	59	50
2	Neutral	4	0	71	56	17	11	20	20	0	32	29	26	23	30
3	Export	65	0	13	21	72	73	63	31	0	18	28	21	17	20
	<b>Total</b>	100	0	100	100	100	100	100	100	0	100	100	100	100	100
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	Import	26	0	16	22	11	21	15	35	0	41	33	48	56	38
5	Neutral	5	0	60	4	39	4	5	18	0	29	20	27	21	23
6	Export	69	0	25	74	50	75	80	47	0	31	47	26	22	39
	<b>Total</b>	100	0	100	100	100	100	100	100	0	100	100	100	100	100
<i>ELT-IIC</i>		<i>Difference</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
7	Import	-5	0	-1	-2	-1	5	-2	-14	0	-9	-11	-5	-3	-12
8	Neutral	0	0	-11	-51	22	-7	-15	-2	0	-3	-8	1	-2	-6
9	Export	4	0	12	54	-21	2	17	16	0	12	19	4	5	18

### 3.1.3. NIE

As was observed for the aggregate trade results of Table 2.1, the trade and embodied skill orientations of the NIE economies appear to be quite congruent. Unlike China, however, there appears to be less aggregation bias in this result. Korea and Taipei,China appear (as an aggregate) to be highly export oriented, averaging over 83% of their trade weighted activities in this category. Across bilateral partners, this trend is generally sustained, the main exception being Japan, with whom trade is more neutral,

Trade with Japan also represents an important disparity between commodity orientation and embodied skill orientation. In particular, NIE are 12% more import dependent with Japan on a skill adjusted basis. The greatest disparity for NIE, however, is with respect to the USA, where 36% of their commodity export orientation is “given back” to neutrality or import orientation when adjustment is made for skill content.

### 3.1.4. ASEAN

The detailed bilateral results for ASEAN are more variegated than the other Asian examples. ASEAN generally exhibits significant differences between simple trade orientation and embodied skill orientation, but the direction of this difference varies with trading partners in interesting ways, indicating an intermediate position for ASEAN in the regional hierarchy of value added.<sup>12</sup>

The good news for ASEAN, in one sense at least, is that it appears to be holding its own with respect to China. Again the inclusion of Singapore may bias the interpretation here, but ASEAN is one region that most fears slipping down the value added “ladder” as its giant neighbor emerges and modernizes economically. Our results indicate that, in 2000 at least, ASEAN was 19% more export oriented on a skill adjusted basis than its raw trade statistics would indicate.

In trade with other partners, the patterns appear to be more intuitive. Both Japan and the US have much higher export advantages in terms of skill orientation with ASEAN. With Japan, 54% more of skill adjusted trade from ASEAN sectors is import

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<sup>12</sup> For more extended background on ASEAN experience in this context, see Tan (1998).

dependent, while 42% of activity linked to US trade moves from export oriented and neutral to import dependent.

### *3.1.5. US and EU*

This being a study of East Asia, we present comparable results for the US and EU, but discuss them only in passing. Especially noteworthy for the US is how skill orientation mitigates import dependence. Indeed, with its non-Japanese East Asian partners, US raw trade data indicate between 26% and 36% greater import dependence than would be supported by skill adjusted data. This means that, like Japan, the US is exchanging traditional mercantilism for something that might be more sustainable. Unlike Japan, however, most of the offset from import dependence is going into the neutral category rather than the export category, indicating that value added mercantilism has not been achieved.

The EU, by contrast, has less of a skill adjusted offset from import dependence and greater transition to a value added mercantile position. In trade with China, for example, EU starts with less export orientation than Japan (11% vs. 65%), but makes up more ground, gaining 29% against 4% for Japan (Table 2.3).

**Table 2.4: International Competitiveness by Commodity and Embodied Skill Content - NIE**

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	Import	4	13	0	17	7	11	3	21	18	0	19	33	42	20
2	Neutral	3	71	0	19	7	5	15	30	32	0	21	29	18	38
3	Export	93	16	0	64	86	84	83	49	50	0	59	39	40	42
	<b>Total</b>	100	100	0	100	100	100	100	100	100	0	100	100	100	100
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	Import	3	25	0	17	10	11	2	18	31	0	15	40	48	18
5	Neutral	3	60	0	19	40	11	14	28	28	0	20	24	22	32
6	Export	94	16	0	65	50	78	84	54	42	0	64	36	30	50
	<b>Total</b>	100	100	0	100	100	100	100	100	100	0	100	100	100	100
<i>ELT-IIC</i>		<i>Difference</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
7	Import	-1	12	0	0	3	0	0	-3	12	0	-4	7	6	-2
8	Neutral	0	-11	0	0	33	6	-1	-2	-4	0	-1	-4	4	-6
9	Export	1	-1	0	0	-36	-6	1	5	-8	0	5	-3	-10	8

**Table 2.5: International Competitiveness by Commodity and Embodied Skill Content - ASEAN**

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	Import	10	21	64	0	7	11	8	41	28	59	0	31	38	26
2	Neutral	61	56	19	0	45	45	73	35	29	21	0	32	23	47
3	Export	29	24	17	0	47	45	19	24	44	19	0	38	39	28
	<b>Total</b>	100	100	100	0	100	100	100	100	100	100	0	100	100	100
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	Import	9	74	65	0	50	20	7	40	47	64	0	47	52	26
5	Neutral	42	4	19	0	32	63	74	34	20	20	0	26	23	49
6	Export	48	22	17	0	18	17	19	27	33	15	0	28	24	26
	<b>Total</b>	100	100	100	0	100	100	100	100	100	100	0	100	100	100
<i>ELT-IIC</i>		<i>Difference</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
7	Import	-1	54	0	0	42	9	-1	-1	19	5	0	16	14	0
8	Neutral	-18	-51	0	0	-13	18	2	-1	-8	-1	0	-6	0	2
9	Export	19	-2	0	0	-29	-27	0	2	-11	-4	0	-10	-14	-2

**Table 2.6: International Competitiveness by Commodity and Embodied Skill Content - USA**

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	Import	68	72	86	47	0	31	29	51	21	39	38	0	46	45
2	Neutral	26	17	7	45	0	55	68	28	26	29	32	0	42	44
3	Export	6	12	7	7	0	15	3	21	53	33	31	0	12	11
	<b>Total</b>	100	100	100	100	0	100	100	100	100	100	100	0	100	100
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	Import	42	71	50	18	0	34	21	34	27	36	28	0	43	29
5	Neutral	45	19	40	69	0	45	63	33	26	24	26	0	44	38
6	Export	13	11	10	13	0	22	16	34	48	40	47	0	13	34
	<b>Total</b>	100	100	100	100	0	100	100	100	100	100	100	0	100	100
<i>ELT-IIC</i>		<i>Difference</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
7	Import	-26	-1	-36	-29	0	3	-8	-17	5	-3	-10	0	-3	-16
8	Neutral	19	2	33	23	0	-10	-5	5	0	-4	-6	0	2	-6
9	Export	7	-1	3	6	0	7	13	12	-5	7	16	0	1	22

**Table 2.7: International Competitiveness by Commodity and Embodied Skill Content - EU**

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	Import	31	73	84	45	15	0	1	39	17	40	39	12	0	8
2	Neutral	58	11	5	45	55	0	99	30	23	18	23	42	0	91
3	Export	11	16	11	11	31	0	0	32	59	42	38	46	0	1
	<b>Total</b>	100	100	100	100	100	0	100	100	100	100	100	100	0	100
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	Import	26	75	78	17	22	0	0	27	22	30	24	13	0	3
5	Neutral	34	4	11	62	44	0	60	27	21	22	22	43	0	50
6	Export	40	21	11	21	34	0	40	47	56	48	53	44	0	47
	<b>Total</b>	100	100	100	100	100	0	100	100	100	100	100	100	0	100
<i>ELT-IIC</i>		<i>Difference</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
7	Import	-5	2	-6	-27	7	0	-1	-12	5	-10	-14	1	0	-5
8	Neutral	-24	-7	6	18	-10	0	-39	-3	-2	4	-1	1	0	-41
9	Export	29	5	0	10	3	0	40	15	-3	6	15	-2	0	46

### 3.2. *Recent Trends in International Competitiveness*

The previous results give a static picture of comparative advantage for the most recent year that data are available to support his kind of detailed analysis. While such results are quite thought provoking, most observers of the economies under discussion are at least equally concerned about the underlying trends in regional specialization and factor composition. For this reason, we have generated the same information for an earlier year 1996, and in this section we combine the results to give an indication about how trade and embodied value patterns may be shifting.

Like its counterpart Table 2.1, Table 2.8 below presents results for all trade from each of the countries and country groups already considered. What is measured here, however, are intertemporal (1996-2000) differences in the same underlying IIC and ELT tercile percentages. For example, the element in row 1, column 1 indicates that, between 1996 and 2000, China's IIC import orientation fell by 17%, with all this activity moving into neutral orientation. By contrast, its skill adjusted trade was 16% less import oriented by 2000, but 5% more was now export oriented. Thus China has indeed migrated up the value added ladder in terms of export orientation. Obviously, the net result of these adjustments (Total) must be zero for each country.

The percent changes reported in Tables 2.8-2.14 do not directly measure changes in underlying trade balances or overseas market shares. What is being shown here is based on tercile movements for an index of (simple and skill weighted) trade orientation. Thus an entry of (+1) implies a one percentage point increase in (simple or trade weighted) the tercile share of (respectively) Import-intensive, Neutral, or Export-intensive domestic economic activity. In the case of IIC, movements in the three ranks are directly correlated with net trade (E-M) and will agree in sign with this balance, but even this index is normalized by contemporaneous total trade.

In addition to China, there are a variety of other interesting trends in the aggregate trade data. All the East Asian economies, for example, have reduced the percentage of their activities that are import dependent, but this has had different consequences for

different countries. Japan and the NIE economies, for example, have experienced strong accompanying shifts toward export orientation, with 29% and 38% net increases in this category, respectively. In terms of skill adjusted trade, however, Japan and NIE have experienced much less structural adjustment, but there is still a net shift from import to export orientation. At the same time, ASEAN has seen its trade shift toward neutrality from both import and export orientation.

Trends for western OECD economies are comparable in simple trade orientation by differ markedly when account is taken for skill content. Both the US and EU see big declines in net percentage of export oriented sectors over the 1996-2000 period (-42% and -51% respectively). For the US, this translated into increased neutrality and import orientation, while for the EU neutrality alone increased. When account is taken of skill content, however, the US still losses 42% of its (trade weighted) export specialized activities, with half of this amount now represented by import dependence. For the EU, skill adjustment erases most of commodity trade shift, and only a small move toward neutrality is apparent.

### *3.2.1. China*

Turning now to trends in bilateral trade for each country and country group, Table 2.9 presents results for China in greater detail. The aggregate trade results for this country indicated a net shift out of import dependence and even, in terms of skill content, gains in export specialization. While aggregation across trading partners may not have introduced serious bias, the detailed results indicate very different bilateral adjustments, and these can be expected to bear significantly on the political economy of trade and other negotiations.

In trade with Japan, China has significantly increased the percentage of its import dependent domestic activities. This trend is consistent with anecdotal evidence on flows of capital and advanced intermediate goods. When looking at these adjustments from a skill content perspective, one might expect even greater percentage changes. The opposite occurs, however, probably because Japanese capital goods are moving into Chinese sectors with much higher than average skill content. The trend established with

Japan is mirrored in trade with NIE, although the percentage changes are even greater because of NIE's higher specialization.

Trade with ASEAN appears to be evolving somewhat differently. From the raw trade data, one might infer that China's export advantage as deteriorated, with 28% of export oriented activities shifting to neutral or import oriented. Taking account of embodied skills, however, a different adjustment process is revealed. Here there is less reduction in the export oriented category, but a strong shift from neutral activities to import dependent ones. In this way, it appears that skill adjusted bilateral trade is becoming more polarized between these two partners. Trade with the western OECD economies appears very consistent with conventional intuition, with China emerging as a strong export competitor in simple trade orientation. Taking account of skill content, however, these industrialized partners concede very little of their export advantage.

When considering all the excitement among China observers on the sidelines, it now seems important to emphasize the difference between aggregate growth and compositional effects. Certainly, this economy's growth has been spectacular, but the optimism about rapid migration up the value-added ladder apparently needs to be tempered. Chinese skilled employment has grown much faster than is traditional for developing countries, and certainly this will improve the distributional properties of domestic income growth over the course of the China's longer term expansion.

This admirable rate of absolute job growth is probably relatively balanced, however, especially in light of the obvious fact that the most elastic supply of domestic labor is not in the higher skill categories. In particular, China's ability to shift real comparative advantage to higher skill levels also depends on superior growth in the share of this employment, and convincing evidence in this area is harder to establish. Finally, China's burgeoning demand for imports of all kinds, and those of higher skill content in particular, will influence this outcome.

Suffice for the present to observe that the aggregate trade results for China do not indicate that significant skill upgrading of its comparative advantage has taken place over the period 1996-2000. In this sense, China's much acclaimed skilled job growth does not appear to be shifting it sharply toward higher value added competitiveness. Having said

this, it is noteworthy that skill oriented import reliance has declined significantly, with the economy moving closer to neutrality. The two primary contributors to this are probably higher tech import substitution and basic economic diversification accompanying the development process.

### *3.1.2. Japan*

For Japan, an increased export specialization is readily apparent in Table 2.8. The composition of this adjustment is more apparent in Table 2.10, with the main growth in

its largest export markets, the US and EU. Interestingly, China also contributed to this export shift, despite all the attention given to the notorious issue of “hollowing out.” Certainly, Japanese FDI has created substantial employment in China, and some of this has displaced domestic jobs, but perhaps the gains from capital goods exports to China are being underestimated. Elsewhere in East Asia, Japan shifted strongly towards neutrality, this may also reflect trends in supply chain decomposition.<sup>13</sup>

Strongly import-reliant sectors declined across the board for Japan, both in simple trade and embodied skill terms, and export orientation grew for China (18%), the US (49%), and EU (56%). In terms of skill content, this trend was the same in qualitative terms, but less pronounced (2%, 26%, and 6%, respectively). Overall, Japan appeared to strengthen its export competitiveness during this period being considered.<sup>14</sup>

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<sup>13</sup> See Roland-Holst:2003a for more detailed discussion of this trend.

<sup>14</sup> This is consistent with forward looking arguments by other authors, including Koshaka (1994, 1996) and Kawai and Urata (1996).

**Table 2.8: Change in International Competitiveness, 1996-2000**  
(percentage point differences)

		Trade Weighted Percentages						Percentages by Sector Count					
<i>IIC</i>		<i>Intra-industry Competitiveness</i>											
		1	2	3	4	5	6	8	9	10	11	12	13
		China	Japan	NIE	ASEAN	USA	EU	China	Japan	NIE	ASEAN	USA	EU
1	Sugar and Confe	-17	-21	-17	-27	9	-1	-12	-6	-5	-10	7	1
2	Neutral	17	-7	-21	29	32	52	5	5	3	8	3	-2
5	Processed Cerea	0	29	38	-2	-42	-51	7	1	2	2	-10	1
<b>Total</b>		0	0	0	0	0	0	0	0	0	0	0	0
<i>ELT</i>		<i>Embodied Labor Trade</i>											
		China	Japan	NIE	ASEAN	USA	EU	China	Japan	NIE	ASEAN	USA	EU
6	Tobacco and Su	-16	-3	-2	-6	14	0	-20	-8	0	-1	-7	2
7	Neutral	11	-1	-4	6	15	3	-3	11	-13	-17	-24	-49
10	Ores, slag and as	5	4	6	1	-29	-3	22	-2	14	18	31	47
<b>Total</b>		0	0	0	0	0	0	0	0	0	0	0	0

**Table 2.9: Change in International Competitiveness, 1996-2000 - CHINA**  
(percentage point differences)

	Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>	<i>Intra-industry Competitiveness</i>													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1 Import	0	18	30	2	-40	-42	-17	0	-6	-6	-4	-10	-8	-12
2 Neutral	0	-10	-18	26	-4	35	17	0	7	7	2	-1	8	5
3 Export	0	-8	-12	-28	44	6	0	0	-1	-1	2	11	0	7
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>ELT</i>	<i>Embodied Labor Trade</i>													
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4 Import	0	2	3	22	-37	2	-16	0	-44	-42	-19	-2	-11	-20
5 Neutral	0	-1	-4	-18	32	-1	11	0	15	25	-17	-26	-9	-3
6 Export	0	-1	1	-4	4	-2	5	0	30	17	36	28	20	22
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 2.10: Change in International Competitiveness, 1996-2000 - JAPAN**  
(percentage point differences)

		Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>		<i>Intra-industry Competitiveness</i>													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1	<b>Import</b>	-8	0	-26	-10	-44	-50	-21	-1	0	0	1	-4	-7	-6
2	<b>Neutral</b>	-10	0	50	38	-6	-5	-7	7	0	4	13	2	3	5
3	<b>Export</b>	18	0	-24	-28	49	56	29	-6	0	-4	-14	2	4	1
	<b>Total</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>ELT</i>		<i>Embodied Labor Trade</i>													
		China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4	<b>Import</b>	-1	0	-2	-1	-9	-2	-3	-35	0	-1	-23	4	15	-8
5	<b>Neutral</b>	-1	0	28	-1	-17	-4	-1	14	0	-24	12	-7	-11	11
6	<b>Export</b>	2	0	-26	1	26	6	4	21	0	25	11	3	-4	-2
	<b>Total</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### 3.1.3. NIE

Results for the NIE economies are in many ways similar to Japan, but with larger benefits in the bilateral relationships with China, the US, and the EU. One interesting aspect is shared by Japan but to a lesser extent. In terms of simple trade orientation, most of the shift to export orientation is offset by reduction in the import dependent category. In terms of skill composition, however, most growth of export orientation appears to be coming out of the neutral category. The reason for this is presumably the nature of the original skill content adjustment in the original data (see table 2.4 above), which shifts the largest share of trade orientation to the neutral category for these partners. Overall, in any case, the period 1996-2000 saw a shift for NIE's toward greater export orientation, both in simple trade and (less so) in skill content. NIE were already near the top of the regional value added hierarchy, and appear only to have strengthened their position.

### 3.1.4. ASEAN

Contrary to pessimists and an adverse macro environment at the end of the sample period, ASEAN appears to have seen improved conditions of international competitiveness, in terms of both trade and skill orientation, over the 1996-2000 interval.<sup>15</sup> While the percentage of export oriented sectoral activity declined 2% in aggregate, this figure expanded sharply with respect to important trading partners like the USA and EU, and even with China and NIE. More striking was the decline in overall import orientation, ranging from a low of -7% with NIE to -57% with the USA. This trend and the companion shift toward trade neutrality was probably due to three factors:

1. Growth of intra-ASEAN trade
2. The Asian financial crisis
3. Domestic economic diversification

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<sup>15</sup> Weiss and Gao (2002) give a balanced empirical assessment in this context.

### *3.1.5. USA and the EU*

Results for the United States really do not seem very encouraging by either metric of trade orientation. Indeed, the US appears from these estimates to be regressing toward substantially greater import dependence, although adjustment for skill content in some cases significantly offsets this. Even worse, the majority of this adjustment is offset by reductions in export oriented rather than neutral activities, further reducing this economy's ability to capture value added from international trade. This indicator falls in every bilateral case, while its import dependent counterpart increases everywhere except with respect to the EU.

The European Union exhibits very similar trends over 1996-2000, increasing import reliance in most bilateral cases (except the USA), and reducing the share of activities classified as export oriented. Adjustment for skill composition more significantly mitigated the adverse competitive results for the EU, as it had done in the 2000 results above (Table 2.7), and percentage growth of activities classified as neutral was much higher than for the US.

It should also be borne in mind that, like ASEAN, intra-regional trade grew very rapidly in the EU during this period, and this probably gave rise to some trade diversion with respect to the bilateral partners currently under discussion.

**Table 2.11: Change in International Competitiveness, 1996-2000 - NIE**  
(percentage point differences)

	Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>	<i>Intra-industry Competitiveness</i>													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1 Import	-12	-25	0	4	-43	-49	-17	-1	-4	0	0	-14	-12	-5
2 Neutral	-18	52	0	3	-8	-13	-21	7	4	0	8	14	2	3
3 Export	30	-28	0	-7	51	62	38	-6	0	0	-8	0	10	2
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<i>Embodied Labor Trade</i>													
<i>ELT</i>	<i>Embodied Labor Trade</i>													
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4 Import	1	-48	0	0	-10	-9	-2	-3	7	0	-40	-6	15	0
5 Neutral	-4	50	0	15	-17	-51	-4	8	-45	0	12	18	-21	-13
6 Export	3	-2	0	-15	27	60	6	-5	38	0	27	-12	6	14
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 2.12: Change in International Competitiveness, 1996-2000 - ASEAN**  
(percentage point differences)

	Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>	<i>Intra-industry Competitiveness</i>													
	1 China	2 Japan	3 NIE	4 ASEAN	5 USA	6 EU	7 Total	8 China	9 Japan	10 NIE	11 ASEAN	12 USA	13 EU	14 Total
1 Import	-27	-28	-7	0	-57	-50	-27	2	-14	-8	0	-20	-8	-10
2 Neutral	24	38	3	0	31	28	29	2	13	8	0	12	4	8
3 Export	3	-10	4	0	26	22	-2	-4	1	0	0	8	4	2
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<i>Embodied Labor Trade</i>													
<i>ELT</i>	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
	4 Import	-3	1	-15	0	-5	-57	-6	15	-48	-30	0	16	15
5 Neutral	-13	-1	15	0	-1	54	6	-31	16	17	0	-40	-35	-17
6 Export	16	-1	0	0	6	3	1	17	31	13	0	24	20	18
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 2.13: Change in International Competitiveness, 1996-2000 - USA**  
(percentage point differences)

	Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>	<i>Intra-industry Competitiveness</i>													
	1 China	2 Japan	3 NIE	4 ASEAN	5 USA	6 EU	7 Total	8 China	9 Japan	10 NIE	11 ASEAN	12 USA	13 EU	14 Total
1 Import	45	49	51	26	0	-4	9	11	2	0	8	0	12	7
2 Neutral	-7	-6	-8	30	0	9	32	-1	2	14	12	0	-7	3
3 Export	-38	-44	-43	-56	0	-5	-42	-10	-4	-14	-20	0	-5	-10
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>ELT</i>	<i>Embodied Labor Trade</i>													
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4 Import	5	46	27	6	0	4	14	-27	-35	-55	-1	0	11	-7
5 Neutral	13	-38	-17	3	0	2	15	-5	-10	20	-43	0	-13	-24
6 Export	-18	-9	-10	-9	0	-6	-29	32	45	35	44	0	2	31
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 2.14: Change in International Competitiveness, 1996-2000 - EU**  
(percentage point differences)

	Trade Weighted Percentages							Percentages by Sector Count						
<i>IIC</i>	<i>Intra-industry Competitiveness</i>													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
1 Import	6	56	61	22	-5	0	-1	0	4	10	4	-5	0	1
2 Neutral	34	-5	-12	27	11	0	52	8	3	2	4	-7	0	-2
3 Export	-41	-50	-49	-49	-6	0	-51	-8	-7	-12	-8	12	0	1
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>ELT</i>	<i>Embodied Labor Trade</i>													
	China	Japan	NIE	ASEAN	USA	EU	Total	China	Japan	NIE	ASEAN	USA	EU	Total
4 Import	-2	6	40	3	-6	0	0	-28	-41	-26	-11	-16	0	2
5 Neutral	7	-4	-31	29	2	0	3	-6	-12	-17	-36	-19	0	-49
6 Export	-4	-2	-9	-33	4	0	-3	34	53	43	47	35	0	47
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

#### 4. Conclusions and Extensions

Over the last generation, East Asian trade has emerged as a model for dynamic resource allocation and international specialization. At the same time as this process began to mature, the emergence of China has given the process new impetus and increased uncertainty about the evolution of the regional activity matrix. The region can still aspire to a long term future of highly industrialized and diversified regions like Europe. Many observers are concerned that in the short and medium term, however, direct and indirect competition may lead to painful domestic structural adjustments. The lessons of recent history, as distilled in the present research, indicate that regional patterns of comparative advantage are fairly robust.

In particular, we examined detailed trade patterns from two perspectives, simple trade orientation and orientation of trade adjusted for skilled labor content. The emergence of new competition in regional commodity trade is undeniable, but the de facto regional hierarchy of value added in East Asia has not been substantially altered. Indeed, the most skill intensive exporters, Japan and the NIE's, have actually intensified their "skill specialization" over the period 1996-2000. In a post-WTO era where mercantilism is untenable, these results point to a neo-mercantilism of value added capture, where economies increase both imports and exports, but strive to maximize the skill margin between the two.<sup>16</sup>

Given the rapid evolution of some of the economies being considered, it would obviously be desirable to extend this work with more recent data. More intensive development of occupational data like that used to complement the trade statistics would also be valuable, and would support finer delineation of these results along sectoral lines. All this kind of work can be of value to policy makers navigating the complex multilateral environment of Pacific regional trade and in its relationship with the global economy, but the current results should offer some comfort to those who fear we are

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<sup>16</sup> Warnings about the sustainability of this approach are many, e.g. OECD (1999), Bhagwati and Panagariya (1996), and UNDTAD (1999), but the temptation is great.

headed into a world of intensified trade rivalry, spiraling deflation, and perhaps even resurgent protectionism.

Generally speaking, our results indicate that the potential for regional trade to accommodate new suppliers is considerable, and we gave many examples of how trade over recent years has done exactly this. These results are of considerable policy relevance in their own right, since they may help defuse misdirected trade rivalry and protectionist sentiment that can exploit a weaker basis of evidence on actual trade experience. Having said this, however, this relatively optimistic vision does rest on another, larger aspiration, sustained aggregate economic growth. The results of the two predecessors to this study indicate that this aggregate optimism is justified, and the combined message is one of sustained and broadly distributed opportunity, opportunity for governments and enterprises to realize the immense economic potential of this region and its people.

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